What is claimed is:

1. A fluid bearing motor comprising:

a fixed bearing member;

a rotary bearing member;

a hydrodynamic lubricant filled between said fixed bearing member and said rotary bearing member;

a rotor section having a hollow cylinder in the middle thereof, a flange formed at one end of said hollow cylinder, and a rotary magnet disposed on said flange;

a fixed shaft with one end fixed on a chassis, which passes through the hollow cylinder; and

a stator provided with a coil which generates a rotational force in cooperation with the rotary magnet,

wherein said fixed bearing member is disposed on the chassis,

said fixed bearing member and said rotary bearing member configure a bearing which rotatably supports said rotor section,

the bearing is arranged at a position apart from said fixed shaft,

said fixed shaft includes a small diameter portion and a large diameter portion,

the hollow cylinder is formed with a projection at a part of its inner periphery, and

the projection is arranged in such manner that it is positioned within the diameter of the large diameter portion of the fixed shaft and outside the small diameter portion.

2. The fluid bearing motor of claim 1,

wherein the projection is circular, having a small-bore portion formed at the inner periphery of said hollow cylinder.

3. The fluid bearing motor of claim 1,

wherein a first stepped surface formed by the small-bore portion at the inner periphery of said hollow cylinder and a second stepped surface formed by the small-diameter portion at the outer periphery of said fixed shaft are opposed to each other with a predetermined clearance provided therebetween.

4. The fluid bearing motor of claim 1,

wherein the projection is formed of a stop ring, and

one surface of said stop ring abuts a third stepped surface formed at the inner periphery of said hollow cylinder.

5. The fluid bearing motor of claims 1 to 4,

wherein the predetermined clearance between the first stepped surface and the second stepped surface ranges from 5 μm to 100 μm.

6. The fluid bearing motor of claims 1, 4,

wherein said fixed shaft is made from a magnetic material,

the clearance between the first stepped surface and the second stepped surface is filled with magnetic fluid, and

a magnet is disposed on said chassis, opposing to the inner periphery of said hollow cylinder at the chassis side rather than the projection.

7. The fluid bearing motor of claims 1, 4,

wherein said fixed shaft is made from a magnetic material,

the clearance between the first stepped surface and the second stepped surface is filled with magnetic fluid, and

a magnet is disposed at the inner periphery of said hollow cylinder at the chassis side rather than the projection.

8. The fluid bearing motor of claim 6,

wherein said stop ring is made from a magnetic material.

9. The fluid bearing motor of claim 7,

wherein said stop ring is made from a magnetic material.

10. The fluid bearing motor of claim 4,

wherein said stop ring is made from a resin material having a low friction factor.

11. The fluid bearing motor of claim 4,

wherein said fixed shaft is made from a magnetic material, and

the clearance between the first stepped surface and the second stepped surface is filled with magnetic fluid, and

said stop ring is formed of a permanent magnet.

12. The fluid bearing motor of claims 4, 10,

wherein in the vicinity of the first stepped surface, the inner periphery of said hollow cylinder is tapered to increase in bore diameter as it approaches the projection.

13. A fluid bearing motor comprising:

a fixed bearing member;

a rotary bearing member;

a hydrodynamic lubricant filled between said fixed bearing member and said rotary bearing member;

a rotor section having a hollow cylinder in the middle thereof, a flange formed at one end of said hollow cylinder, and a rotary magnet disposed on said flange;

a fixed shaft with one end fixed on a chassis, which passes through the hollow cylinder; and

a stator provided with a coil which generates a rotational force in cooperation with the rotary magnet,

wherein said fixed bearing member is disposed on the chassis,

said fixed bearing member and said rotary bearing member configure a bearing which rotatably supports said rotor section,

the bearing is arranged at a position apart from said fixed shaft,

said fixed bearing member comprises a first inner periphery and a second inner periphery,

the first inner periphery is smaller in diameter than the second inner periphery,

the hollow cylinder is formed with a projection at a part of its outer periphery, and

the projection is arranged in such manner that it is positioned within the diameter of the second inner periphery of the fixed bearing member and outside the first inner periphery.

14. The fluid bearing motor of claim 13,

wherein said projection is formed of a circular stop ring.

15. The fluid bearing motor of claim 13,

wherein a dynamic pressure generating groove is formed in at least one of the first inner periphery and the outer periphery of the hollow cylinder;

the upper end of the fixed side bearing and the lower end of the flange are opposed to each other with a predetermined clearance provided therebetween;

a dynamic pressure generating groove is formed in at least one of the upper end surface of the fixed side bearing and the lower end surface of the flange; and

the hydrodynamic lubricant is filled (i) between the first inner periphery and the outer periphery of the hollow cylinder, (ii) between the upper end of the fixed side bearing and the lower end of the flange, and (iii) between the first stepped surface and the second stepped surface.

16. The fluid bearing motor of claim 13,

wherein the hollow cylinder and the flange are integrally formed from same material.

17. The fluid bearing motor of claims 13 to 15,

wherein the stop ring is made from a resin material having low friction characteristics.

18. The fluid bearing motor of claims 13 to 15,

further comprising a permanent magnet fixed on the chassis, opposing to the other surface of the stop ring with a clearance provided therebetween,

wherein the fixed side bearing is formed from a magnetic material.

19. The fluid bearing motor of claims 13 to 15,

further comprising a permanent magnet fixed on the other surface of the stop ring,

wherein the fixed side bearing is formed from a magnetic material.

20. The fluid bearing motor of claim 18,

wherein the stop ring is formed from a magnetic material.

21. The fluid bearing motor of claim 19,

wherein the stop ring is formed from a magnetic material.

22. The fluid bearing motor of claims 13 to 16,

wherein the predetermined clearance between the stepped surface and the other surface of the stop ring ranges from 5 μm to 100 μm.

23. The fluid bearing motor of claims 13 to 16,

wherein the chassis has a positioning projection for positioning the fixed side bearing.

24. The fluid bearing motor of claims 23,

wherein the positioning projection is ring-form, and the outer periphery of the fixed side bearing engages the inner periphery of the positioning projection.

25. The fluid bearing motor of claims 24,

wherein the positioning projections are at least three columnar projections which externally come in contact with the

outer periphery of the fixed side bearing.

26. A disk drive, comprising:

a fixed bearing member;

a rotary bearing member;

a hydrodynamic lubricant filled between said fixed bearing member and said rotary bearing member;

a rotor section having a hollow cylinder in the middle thereof, a flange formed at one end of said hollow cylinder, and a rotary magnet disposed on said flange;

a fixed shaft with one end fixed on a chassis, which passes through the hollow cylinder; and

a stator provided with a coil which generates a rotational force in cooperation with the rotary magnet,

wherein said fixed bearing member is disposed on the chassis,

said fixed bearing member and said rotary bearing member configure a bearing which rotatably supports said rotor section,

the bearing is arranged at a position apart from said fixed shaft,

said fixed shaft includes a small diameter portion and a large diameter portion,

the hollow cylinder is formed with a projection at a part of its inner periphery, and

the projection is arranged in such manner that it is positioned within the diameter of the large diameter portion of the fixed shaft and outside the small diameter portion, further

comprising:

at least one disk which is placed on the top surface of the flange and formed with recording medium on the surface thereof;

a cover which abuts one tip end of the fixed shaft;

at least one signal conversion element for recording/reproducing signals on the recording medium formed on the disk; and

at least one oscillating means for positioning the signal conversion element to a predetermined track position.

27. The disk drive of claim 26,

wherein a first stepped surface formed by the small-bore portion at the inner periphery of the hollow cylinder and a second stepped surface formed by the small-diameter portion at the outer periphery of the fixed shaft are opposed to each other with a predetermined clearance provided therebetween.

28. The disk drive of claim 26,

wherein the small-bore portion is a projection formed at a part of the inner periphery of the hollow cylinder.

29. The disk drive of claim 26,

wherein the projection is formed of a stop ring, and

one surface of the stop ring abuts a third stepped surface formed at the inner periphery of the hollow cylinder.

30. The disk drive of claims 28, 29,

wherein the fixed shaft is made from a magnetic material,

the clearance between the first stepped surface and the

second stepped surface is filled with magnetic fluid, and

a magnet is disposed on the chassis, opposing to the inner periphery of the hollow cylinder at the chassis side rather than the projection.

31. The disk drive of claims 28, 29,

wherein the fixed shaft is made from a magnetic material,

the clearance between the first stepped surface and the second stepped surface is filled with magnetic fluid, and

a magnet is disposed on the chassis, opposing to the inner periphery of the hollow cylinder at the chassis side rather than the projection.

32. The disk drive of claim 30,

wherein the stop ring is made from a magnetic material.

33. The disk drive of claim 31,

wherein the stop ring is made from a magnetic material.

34. The disk drive of claim 29,

wherein the stop ring is made from a resin material having a low friction factor.

35. The disk drive of claim 29,

wherein the fixed shaft is made from a magnetic material,

the clearance between the first stepped surface and the second stepped surface is filled with magnetic fluid, and

the stop ring is formed of a permanent magnet.

36. The disk drive of claims 34, 35,

wherein in the vicinity of the first stepped surface, the

inner periphery of the hollow cylinder is tapered increasing in bore diameter as it approaches the projection.

37. The disk drive of claims 26 to 29,

wherein the predetermined clearance between the first stepped surface and the second stepped surface ranges from 5 μm to 100 μm.

38. The disk drive of claim 26,

wherein the fixed shaft has a thread at its end,

the cover has a through-hole at an abutment which abuts the thread of the fixed shaft, and

the cover is screwed to the fixed shaft via the through-hole.

39. A disk drive, comprising:

a fixed bearing member;

a rotary bearing member;

a hydrodynamic lubricant filled between said fixed bearing member and said rotary bearing member;

a rotor section having a hollow cylinder in the middle thereof, a flange formed at one end of said hollow cylinder, and a rotary magnet disposed on said flange;

a fixed shaft with one end fixed on a chassis, which passes through the hollow cylinder; and

a stator provided with a coil which generates a rotational force in cooperation with the rotary magnet,

wherein said fixed bearing member is disposed on the chassis,

said fixed bearing member and said rotary bearing member

configure a bearing which rotatably supports said rotor section,

the bearing is arranged at a position apart from said fixed shaft,

said fixed bearing member includes a first inner periphery and a second inner periphery,

the first inner periphery is smaller in diameter than the second inner periphery,

the hollow cylinder is formed with a projection at a part of its inner periphery, and

the projection is arranged in such manner that it is positioned within the diameter of the second inner periphery of the fixed bearing member and outside the first inner periphery, further comprising:

at least one disk which is placed on the top surface of the flange and formed with a recording medium layer on the surface thereof;

a cover which abuts one tip end of the fixed shaft;

at least one signal conversion element for recording/reproducing signals on the recording medium layer formed on the disk; and

at least one oscillating means for positioning the signal conversion element to a predetermined track position.

40. The disk drive of claim 39,

wherein a dynamic pressure generating groove is formed in at least one of the first inner periphery and the outer periphery

of the hollow cylinder;

the upper end of the fixed side bearing and the lower end of the flange are opposed to each other with a predetermined clearance provided therebetween;

a dynamic pressure generating groove is formed in at least one of the upper end surface of the fixed side bearing and the lower end surface of the flange; and

the hydrodynamic lubricant is filled (i) between the first inner periphery and the outer periphery of the hollow cylinder, (ii) between the upper end of the fixed side bearing and the lower end of the flange, and (iii) between the first stepped surface and the second stepped surface.

41. The disk drive of claim 39,

wherein the hollow cylinder and the flange are integrally formed from same material.

42. The disk drive of claims 39 to 41,

wherein the stop ring is formed from a resin material having low friction characteristics.

43. The disk drive of claims 39 to 41,

further comprising a permanent magnet fixed on the chassis, opposing to another surface of the stop ring with a clearance provided therebetween,

wherein the fixed side bearing is formed from a magnetic material.

44. The disk drive of claims 39 to 41,

further comprising a permanent magnet fixed on the other surface of the stop ring,

wherein the fixed side bearing is formed from a magnetic material.

45. The disk drive of claim 43,

wherein the stop ring is formed from a magnetic material.

46. The disk drive of claim 44,

wherein the stop ring is formed from a magnetic material.

47. The disk drive of claims 39 to 41,

wherein the predetermined clearance between the stepped surface and the other surface of the stop ring ranges from 5 μm to 100 μm.

48. The disk drive of claims 39 to 41,

wherein the chassis has a positioning projection for positioning the fixed side bearing.

49. The disk drive of claims 39 to 41,

wherein the fixed shaft has a thread at the end thereof, and

the cover has a through-hole at an abutment which abuts the thread of the fixed shaft, and

the cover is screwed to the fixed shaft via the through-hole.